



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/528,808
	Filing Date	March 23, 2005
	First Named Inventor	Leonard I. Zon
	Art Unit	1636
	Examiner Name	To be assigned
Total Number of Pages in This Submission	Attorney Docket Number	701039-53222

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	Certificate of Mailing; COPY-Certificate of Limited Recognition; COPY-References C1-C56; and Return Receipt Postcard
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Reply to Missing Parts/Incomplete Application	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	Remarks	
The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment to the Nixon Peabody LLP Deposit Account No. 50-0850.		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	Nixon Peabody LLP, 100 Summer Street, Boston, MA 02110	
Signature		
Printed name	David S. Resnick/Leena H. Karttunen	
Date	12/15/2005	Reg. No. 34,235/L0207

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:		
Signature		
Typed or printed name	Linda M. Ginsberg	Date Dec. 15, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Practitioner's Docket No. 701039-53222

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Leonard I. Zon et al.

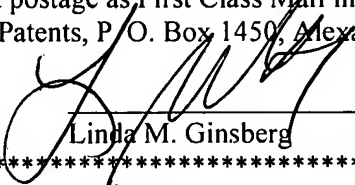
Application No.: 10/528,808 Group No.: 1636
Filed: March 23, 2005 Examiner: To be assigned
Confirmation No.: 8743 Customer No.: 50828
For: METHOD OF ENHANCING PROLIFERATION AND/OR
HEMATOPOIETIC DIFFERENTIATION OF STEM CELLS

MAIL STOP AMENDMENT
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is, on the date shown below, being: deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to MAIL STOP AMENDMENT, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Date: December 15, 2005


Linda M. Ginsberg

Sir:

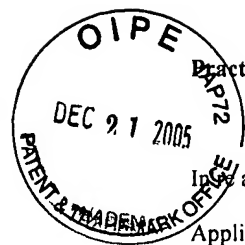
SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the provisions of 37 C.F.R. §§1.56 and 1.97, Applicants herewith submit the publications and/or patents shown on the attached forms PTO/SB/08 b, for consideration by the Examiner in connection with the examination of the above-identified patent application.

I. REMARKS

In accordance with the provisions of 37 C.F.R. §1.97, this statement is being filed:

- X (1) within three (3) months of the Filing Date or **before the mailing date of the First Office Action** on the merits; or
- (2) within three months of the mailing date of the PCT International Search Report;
- or



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor application of: Leonard I. Zon et al.
Application No.: 10/528,808
Filed: March 23, 2005
Confirmation No.: 8743
For: METHOD OF ENHANCING PROLIFERATION AND/OR HEMATOPOIETIC DIFFERENTIATION OF STEM CELLS
Group No.: 1636
Examiner: To be assigned
Customer No.: 50828

- (3) after the period defined in (1) but before the mailing date of a **Final Rejection** or **Notice of Allowance**, and the requisite Certification or fee under Rule 1.17(p), namely **\$180.00**, is included herein; or
- (4) after the mailing date of a **Final Rejection** or **Notice of Allowance** but before the payment of the **Issue Fee**, and the requisite Certification, petition, and petition fee are included herein.

It is respectfully requested that each of the documents shown on the attached form(s) PTO/SB/08a and b be made of record in this application. Copies of these documents (CHECK ONE):

- X are enclosed herewith; and
- have been cited in the parent application, and are thus not being resubmitted herein.

Early examination and allowance of the present application are respectfully solicited.

FEE AUTHORIZATION

Should any fees associated with the submission be required, the Commissioner is authorized to charge the missing fee to our Deposit Account No. 50-0850. Any overpayments should be credited to said Deposit Account.

Respectfully submitted,

David S. Resnick (Reg. No. 34,235)
Leena H. Karttunen(L0207)
NIXON PEABODY LLP
100 Summer Street
Boston, MA 02110
(617) 345-6057

Date: December 15, 2005



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PTO/SB/08A/B 08-03)
Approved for use through 07/31/2006. OMB 0651-0031
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449 PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/528,808
		Filing Date	3/23/2005
		First Named Inventor	Leonard I. Zon
		Art Unit	To be assigned
		Examiner Name	To be assigned
Sheet 1 of 4	Attorney Docket Number	701039-053222	

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
		Number – Kind Code ² (if known)			

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
		Country Code ³ – Number 4 – Kind Code ⁵ (if known)			

NON PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	C1	LEWIS, E. B. A Gene Complex Controlling Segmentation in <i>Drosophila</i> <i>Nature</i> (December 7, 1978), Vol. 276, 565-570.
	C2	BUSKE and HUMPHRIES Homeobox Genes in Leukemogenesis, <i>International Journal of Hematology</i> , (2000), Vol. 71, 301-308.
	C3	GALLOWAY and ZON. Ontogeny of Hematopoiesis: Examining the Emergence of Hematopoietic Cells in the Vertebrate Embryo, <i>Current Topics in Developmental Biology</i> , Vol. 53, 139-158.
	C4	KIMMEL et al. Origin and Organization of the Zebrafish Fate Map, <i>Development</i> (1990), Vol. 108, 581-594.
	C5	HAMMERSCHMIDT et al. Genetic analysis of dorsoventral pattern formation in the zebrafish: requirement of BMP-like ventralizing activity and its dorsal repressor <i>Genes & Development</i> (1996), Vol. 10, 2452-2461.
	C6	SAUVAGEAU et al. Overexpression of HOXB4 in hematopoietic cells causes the selective expansion of more primitive populations in vitro and in vivo, <i>Genes & Development</i> (1995), Vol. 9:1753-1765.
	C7	KRAUSS et al. Expression of the zebrafish paired box gene pax[zf-b] during early neurogenesis, <i>Development</i> (1991), Vol. 113, 1193-1206.
	C8	JOLY et al. Expression of a zebrafish caudal homeobox gene correlates with the establishment of posterior cell lineages at gastrulation, <i>Differentiation</i> (1992), Vol. 50: 75-87.
	C9	MLODZIK et al. Isolation of caudal, a <i>Drosophila</i> homeobox-containing gene with maternal expression, whose transcripts form a concentration gradient at the pre-blastoderm stage, <i>The EMBO Journal</i> (1985), Vol. 4 No. 11: 2961-2969.
	C10	PERKINS and CORY Conditional immortalization of mouse myelomonocytic, megakaryocytic and mast cell progenitors by the HOX-2.4 homeobox gene, <i>The EMBO Journal</i> (1993), Vol. 12 no. 10:3835-3846.
	C11	CHOI, Kyunghye, The Hemangioblast: A Common Progenitor of Hematopoietic and Endothelial Cells, <i>Journal of Hematotherapy & Stem Cell Research</i> (2002), Vol. 11: 91-101.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449 PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/528,808
				Filing Date	3/23/2005
				First Named Inventor	Leonard I. Zon
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	2	70	4	Attorney Docket Number	701039-053222

NON PATENT LITERATURE DOCUMENTS			
	C12	STRUHL, Gary, Genes Controlling Segmental Specification in the Drosophila Thorax, <i>Proc. Natl. Acad. Sci. USA</i> (1982) Vol. 79, 7380-7384.	
	C13	HUNT and KRUMLAUF Deciphering the Hox Code: Clues to patterning branchial regions of the head, <i>Cell</i> , September 20, 1991, Vol. 66:1075-1076.	
	C14	OWENS and HAWLEY HOX and Non-HOX Homeobox Genes in Leukemic Hematopoiesis, <i>Stem Cells</i> , (2002), Vol. 20:364-379.	
	C15	CHOI et al. A common precursor for hematopoietic and endothelial cells, <i>Development</i> (1998), Vol. 125:725-732.	
	C16	GERING et al. The SCL gene specifies haemangioblast development from early mesoderm, <i>The EMBO Journal</i> (1998), Vol. 17:4029-4045.	
	C17	LIAO et al., SCL/Tal-1 transcription factor acts downstream of cloche to specify hematopoietic and vascular progenitors in zebrafish, <i>Genes & Development</i> (1998), Vol. 12:621-626.	
	C18	SHIVDASANI et al., Absence of blood formation in mice lacking the T-cell leukaemia oncoprotein tal-1/SCL, <i>Nature</i> , February 2, 1995, Vol. 373:432-434.	
	C19	ROBB et al., Absence of yolk sac hematopoiesis from mice with a targeted disruption of the <i>scl</i> gene, <i>Proc. Natl. Acad. Sci. USA</i> , (1995) Vol. 92:7075-7079.	
	C20	WARGA and NUSSLEIN-VOLHARD, Origin and development of the sebrafish endoderm, <i>Development</i> (1999), Vol. 126:827-838.	
	C21	KRUMLAUF, Robb, Hox Genes in Vertebrate Development, <i>Cell</i> , July 29, 1994, Vol. 78:191-201.	
	C22	CARÉ et al., Enforced expression of HOXB7 promotes hematopoietic stem cell proliferation and myeloid-restricted progenitor differentiation, <i>Oncogene</i> (1999) Vol. 18:1993-2001.	
	C23	THORSTEINSDOTTIR et al., Overexpression of the myeloid leukemia-associated Hoxa9 gene in bone marrow cells induces stem cell expansion, <i>Blood</i> , January 1, 2002, Vol. 99: 121-129.	
	C24	ANTONCHUK et al. HOXB4-Induced Expansion of Adult Hematopoietic Stem Cells Ex Vivo, <i>Cell</i> , April 5, 2002, Vol. 109:39-45.	
	C25	KYBA et al. HoxB4 Confers Definitive Lymphoid-Myeloid Engraftment Potential on Embryonic Stem Cell and Yolk Sac Hematopoietic Progenitors, <i>Cell</i> , April 5, 2002, Vol. 109, 29-37	
	C26	KROON et al. Hoxa9 transforms primary bone marrow cells through specific collaboration with Meis1a but not Pbx1b, <i>EMBO J.</i> (1998) Vol. 17, No. 13, 3714-3725.	
	C27	THORSTEINSDOTTIR et al. Overexpression of HOXA10 in Murine Hematopoietic Cells Perturbs both Myeloid and Lymphoid Differentiation and Leads to Acute Myeloid Leukemia, <i>Molecular and Cellular Biology</i> , January 1997, Vol. 17:495-505.	
	C28	NAKAMURA et al. Cooperative activation of Hoxa and Pbx1-related genes in murine myeloid leukaemias, <i>Nature Genetics</i> , February 1996, Vol. 12:149-153.	
	C29	LAM and APLAN NUP98 gene fusions in hematologic malignancies, <i>Leukemia</i> (2002), Vol. 15:1689-1695.	
	C30	ZIEMIN-VAN DER POEL et al., Identification of a gene, MLL, that spans the breakpoint in 11q23 translocations associated with human leukemias, <i>Proc. Natl. Acad. Sci., USA</i> December 1991, Vol. 88:10735-10739.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449 PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/528,808
				Filing Date	3/23/2005
				First Named Inventor	Leonard I. Zon
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	3	70	4	Attorney Docket Number	701039-053222

NON PATENT LITERATURE DOCUMENTS			
	C31	HAMMERSCHMIDT et al., Mutations affecting morphogenesis during gastrulation and tail formation in the zebrafish, <i>Danio rerio</i> , <i>Development</i> , (1996) Vol. 123:143-151.	
	C32	BENNETT et al., Myelopoiesis in the zebrafish, <i>Danio rerio</i> , <i>Blood</i> , 1 August 2001, Vol. 98:643-651.	
	C33	LIESCHKE et al., Morphologic and functional characterization of granulocytes and macrophages in embryonic and adult zebrafish, <i>Blood</i> , November 15, 2001, Vol. 98:3087-3096.	
	C34	SERLUCA and FISHMAN Pre-pattern in the pronephric kidney field of zebrafish, <i>Development</i> , (2002) Vol. 128:2233-2241.	
	C35	CHONG et al. Expression pattern of two zebrafish genes, <i>cxcr4a</i> and <i>cxcr4b</i> , <i>Mechanisms of Development</i> (2001), Vol. 109:347-354.	
	C36	HILD et al. The <i>smad5</i> mutation <i>somitabun</i> blocks <i>Bmp2b</i> signaling during early dorsoventral patterning of the zebrafish embryo, <i>Development</i> (1999), Vol. 126, 2149-2159.	
	C37	POSTLETHWAIT et al. Vertebrate genome evolution and the zebrafish gene map, <i>Nature Genetics</i> , April, 1998, Vol. 18:345-349.	
	C38	KATSUYAMA et al. Ascidian Tail Formation Requires caudal Function, <i>Developmental Biology</i> (1999), Vol. 213:257-268.	
	C39	EDGAR et al. Zygotic Expression of the caudal Homolog <i>pal-1</i> Is Required for Posterior Patterning in <i>Caenorhabditis elegans</i> Embryogenesis, <i>Developmental Biology</i> (2001), Vol. 229, 71-88.	
	C40	SUBRAMANIAN et al. Disruption of the Murine Homeobox Gene <i>Cdx1</i> Affects Axial Skeletal Identities by Altering the Mesodermal Expression Domains of Hox Genes, <i>Cell</i> , November 17, 1995, Vol. 83: 641-653.	
	C41	CHAWENGSAKSOPHAK et al., Homeosis and intestinal tumours in <i>Cdx2</i> mutant mice, <i>Nature</i> , March 6, 1997, Vol. 386:84-87.	
	C42	Van den AKKER et al. <i>Cdx1</i> and <i>Cdx2</i> have overlapping functions in anteroposterior patterning and posterior axis elongation, <i>Development</i> , (2002) Vol. 129:2181-2193.	
	C43	BECK et al. Reprogramming of intestinal differentiation and intercalary regeneration in <i>Cdx2</i> mutant mice, <i>Proc. Natl. Acad. Sci USA</i> , June 1999, Vol: 96:7318-7323.	
	C44	TAMAI et al. Colonic Hamartoma Development by Anomalous Duplication in <i>Cdx2</i> Knockout Mice, <i>Cancer Research</i> , June 15, 1999, Vol. 59:2965-2970.	
	C45	CHARITÉ et al., Transducing positional information to the Hox genes: critical interaction of <i>cdx</i> gene products with position-sensitive regulatory elements, <i>Development</i> (1998), Vol. 125:4349-4358.	
	C46	HUNTER et al. Hox gene expression in a single <i>Caenorhabditis elegans</i> cell is regulated by a caudal homolog and intercellular signals that inhibit Wnt signaling, <i>Development</i> (1999), Vol. 126:805-814.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449 PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/528,808
				Filing Date	3/23/2005
				First Named Inventor	Leonard I. Zon
				Art Unit	To be assigned
				Examiner Name	To be assigned
Sheet	4	70	4	Attorney Docket Number	701039-053222

NON PATENT LITERATURE DOCUMENTS			
	C47	ISAACS et al. Regulation of Hox gene expression and posterior development by the <i>Xenopus</i> caudal homologue Xcad3, <i>The EMBO Journal</i> (1998), Vol. 17, No. 12, 3413-3427.	
	C48	McGRATH and PALIS Expression of Homeobox Genes, Including an Insulin Promoting Factor, in the Murine Yolk Sac at the Time of Hematopoietic Initiation, <i>Molecular Reproduction and Development</i> (1997), Vol. 48:145-153.	
	C49	BUSKE et al. Deregulated expression of HOXB4 enhances the primitive growth activity of human hematopoietic cells <i>Blood</i> (2002), Vol. 100:862-868.	
	C50	BJÖRNSSON et al. Reduced Proliferative Capacity of Hematopoietic Stem Cells Deficient in Hoxb3 and Hoxb4, <i>Molecular and Cellular Biology</i> , June 2003, Vol. 23:3872-3883.	
	C51	KENNEDY et al. A common precursor for primitive erythropoiesis and definitive haematopoiesis, <i>Nature</i> , April 3, 1997, Vol. 386:488-493.	
	C52	CHEN et al. Analysis of Hoxa7/Hoxb7 mutants suggests periodicity in the generation of the different sets of vertebrae, <i>Mechanisms of Development</i> , (1998), Vol. 77:49-57.	
	C53	KAPPEN, Claudia Disruption of the Homeobox Gene Hoxb-6 in Mice Results in Increased Numbers of Early Erythrocyte Progenitors, <i>American Journal of Hematology</i> (2000), Vol. 65:111-118.	
	C54	LAWRENCE et al. Mice Bearing a Targeted Interruption of the Homeobox Gene HOXA9 Have Defects in Myeloid, Erythroid, and Lymphoid Hematopoiesis, <i>Blood</i> (1997), Vol. 89:1922-1930.	
	C55	CHASE et al. Fusion of ETV6 to the Caudal-Related Homeobox Gene CDX2 in Acute Myeloid Leukemia with the t(12;13)(p13;q12), <i>Blood</i> , February 1, 1999, Vol. 93, 1025-1031.	
	C56	KINGSLEY et al., Subtractive hybridization reveals tissue-specific expression of ahnak during embryonic development, <i>Develop. Growth Differ.</i> (200), Vol. 43, 133-143.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

* ¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Examiner Signature		Date Considered	
--------------------	--	-----------------	--